

Application No. 10/687652  
Amendment dated 28 February 2005  
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**Amendments to the Claims**

This listing of claims will replace all prior versions, and listings, of claims in this application:

**Listing of Claims:**

1. (Currently Amended) A photomask material comprising at least two layers of ~~thin inorganic coatings, said coatings changing from opaque to transparent when heated materials, wherein when heated, the inorganic materials from the at least two layers combine to form a resultant material, the resultant material having optical transmission characteristics substantially different from either of the inorganic materials from the at least two layers.~~
2. (Currently Amended) ~~The A~~ photomask of according to claim 1 comprising a transparent protective overcoat.
3. (Currently Amended) ~~The A~~ photomask of according to claim 2 wherein the overcoat comprises a cross-linked polymer.
4. (Currently Amended) A photomask according to claim 1 made by a method comprising:
  - depositing a first layer of ~~an inorganic thin film~~ a first inorganic material on a substrate, ~~the first layer consisting of a layer of a single element metal;~~
  - depositing one or more subsequent layers of ~~another~~ one or more second inorganic material or materials atop the first layer; and,
  - imagewise exposing said ~~the first and one or more subsequent layers to radiation, said exposing creating a thereby heating the first and one or more subsequent layers to form the resultant material with different etching characteristics from said first and subsequent layers in imagewise exposed regions.~~

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5. (Cancelled)
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)
9. (Currently Amended) A photomask according to claim 1 made by a method comprising:  
    providing on the a substrate a first layer of a first material and a second layer of a second material, the first and second materials each having a melting point higher than a melting point of an alloy of the first and second materials; and  
    imagewise exposing the substrate by heating selected adjoining portions of the first and second layers to imaging temperatures exceeding the melting point of the alloy and thereby causing the first and second layers to melt together to form the alloy in the selected adjoining portions.
10. (Original) A photomask comprising first and second areas having different optical characteristics from one another, the first areas comprising a plurality of layers of different inorganic materials, the second areas comprising contiguous regions of an alloy of the inorganic materials, the alloy having a melting temperature lower than melting temperatures of the inorganic materials.
11. (Original) A photomask according to claim 10 wherein the first and second areas have different etching characteristics.
12. (Original) A photomask according to claim 10 wherein the different inorganic materials comprise different metals.

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13. (Currently Amended) A photomask according to claim 10 wherein the alloy has optical characteristics different from optical characteristics of a topmost one of the plurality of layers of inorganic materials, thus creating a visible image on a surface of the resist photomask which can be viewed by illumination with optical radiation.
14. (Original) A photomask according to claim 10 wherein the alloy has a melting point below 300 degrees Celsius.
15. (Original) A photomask according to claim 14 wherein the alloy contains at least 5 percent of one of the inorganic materials.
16. (Original) A photomask according to claim 10 wherein the alloy comprises a binary alloy selected from the group consisting of: AsPb, BiCd, BiCo, BiIn, BiPb, BiSn, BiZn, CdIn, CdPb, CdSb, CdSn, CdTi, CdZn, GaIn, GaMg, GaSn, GaZn, InSn, InZn, MgPb, MgSn, MgTi, PbPd, PbPt, PbSb, PbSn, SbTi, SeTi, SnTi, and, SnZn.
17. (New) A photomask according to claim 10 wherein the different optical characteristics of the first and second areas comprise different optical transmission characteristics.
18. (New) A photomask according to claim 17 wherein, for radiation of a particular wavelength, the first areas have an optical transmission characteristic of less than 7% and the second areas have an optical transmission characteristic of greater than 50%.
19. (New) A photomask according to claim 1 wherein the resultant material has a melting point lower than that of either of the inorganic materials from the at least two layers.
20. (New) A photomask according to claim 19 wherein the melting point of the resultant material is less than 300 degrees Celsius.

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21. (New) A photomask according to claim 1 wherein the resulting material has different etching characteristics than those of either of the inorganic materials from the at least two layers.
22. (New) A photomask according to claim 1 wherein the resulting material comprises one or more oxides, nitrides or hydrides of an alloy of the inorganic materials from the at least two layers.
23. (New) A photomask according to claim 1 wherein the at least two layers of inorganic materials comprise a first layer of a first inorganic material atop a substrate and one or more second layers of one or more second inorganic materials atop the first layer.
24. (New) A photomask according to claim 23 wherein the first inorganic material is a single element metal.
25. (New) A photomask according to claim 23 wherein the resultant material is substantially contiguous with itself and with the first and one or more second layers.
26. (New) A photomask according to claim 23 wherein the first and one or more second inorganic materials comprise different metals.
27. (New) A photomask according to claim 26 wherein the resultant material is a eutectic alloy of the different metals.
28. (New) A photomask according to claim 27 wherein the resultant material comprises a binary alloy selected from the group consisting of: AsPb, BiCd, BiCo, BiIn, BiPb, BiSn, BiZn, CdIn, CdPb, CdSb, CdSn, CdTi, CdZn, GaIn, GaMg, GaSn, GaZn, InSn, InZn, MgPb, MgSn, MgTi, PbPd, PbPt, PbSb, PbSn, SbTi, SeTi, SnTi, and, SnZn.
29. (New) A photomask according to claim 23 wherein, for radiation of a particular wavelength, a combination of the first and one or more second layers has an optical

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transmission characteristic of less than 7% and the resultant material has an optical transmission characteristic of greater than 50%.